

Edge Gateway Service Manual

Notes, cautions, and warnings



NOTE: A NOTE indicates important information that helps you make better use of your product.



CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Before working inside your Edge Gateway

 **NOTE:** The images in this document may differ from your Edge Gateway depending on the configuration you ordered.

Before you begin









1. Save and close all open files and exit all open applications.
2. Shut down your Edge Gateway.

 **NOTE:** The shut-down instruction varies depending on the operating system installed on your Edge Gateway. For more information, see the documentation of your operating system for shut-down instructions.

3. Disconnect your Edge Gateway and all attached devices from their electrical outlets.
4. Disconnect all cables such as network cables, and so on, from your Edge Gateway.
5. Disconnect all attached devices and peripherals, such as keyboard, mouse, monitor, and so on, from your Edge Gateway.

Safety instructions

Use the following safety guidelines to protect your computer from potential damage and ensure your personal safety.

-  **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.
-  **WARNING:** Disconnect all power sources before opening the Edge Gateway cover or panels. After you finish working inside the Edge Gateway, replace all covers, panels, and screws before connecting to the electrical outlet.
-  **CAUTION:** To avoid damaging the Edge Gateway, ensure that the work surface is flat and clean.
-  **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching pins and contacts.
-  **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the technical assistance team. See the safety instructions that shipped with the product.
-  **CAUTION:** Before touching anything inside your Edge Gateway, ground yourself by touching an unpainted metal surface, such as the metal at the back of the Edge Gateway. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.
-  **CAUTION:** When you disconnect a cable, pull on its connector or on its pull tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the ports and connectors are correctly oriented and aligned.
-  **CAUTION:** Press and eject any installed card from the media-card reader.

Recommended tools

The procedures in this document may require the following tools:









- Philips screwdriver
- Flat-head screwdriver
- Plastic tweezers

- 5mm hexagonal socket screwdriver
- 8mm hexagonal socket screwdriver
- 10mm hexagonal socket screwdriver
- Plastic scribe

Screw list

The following table provides the list of screws that are used for securing different components.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Front cover	System base	M3x18	4	
Antenna-cable bracket	System board	M2x4	1	
Antenna-cable bracket	System board	M3x10	2	
Right I/O bracket	System board	M3x10	1	
Left I/O bracket	System board	M3x10	1	
WWAN card	WWAN-card bracket	M2x6	2	
WWAN bracket	System board	M2x4	1	
Earth ground	System base	M4x7	1	

After working inside your Edge Gateway

 **NOTE:** Leaving stray or loose screws inside your Edge Gateway may severely damage your Edge Gateway.

1. Replace all screws and ensure that no stray screws remain inside your Edge Gateway.
2. Connect any external devices, peripherals, or cables you removed before working on your Edge Gateway.
3. Connect your Edge Gateway and all attached devices to their electrical outlets.
4. Power on your Edge Gateway.

Removing the front cover

⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure


1. Turn the system over and place the system on a clean and flat surface.
2. Remove the four screws (M3x18) that secure the front cover to the system base.



3. Turn the system over.
4. Lift the front cover off the system base.



Replacing the front cover

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Procedure

1. Place the front cover into the slots on the system base.

 **NOTE:** Note the orientation of the front cover. Align the notch on the front cover with the slots on the system base and place the front cover.



2. Turn the system over.
3. Replace the four screws (M3x18) that secure the front cover to the system base.

Removing the antenna-cable bracket

⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

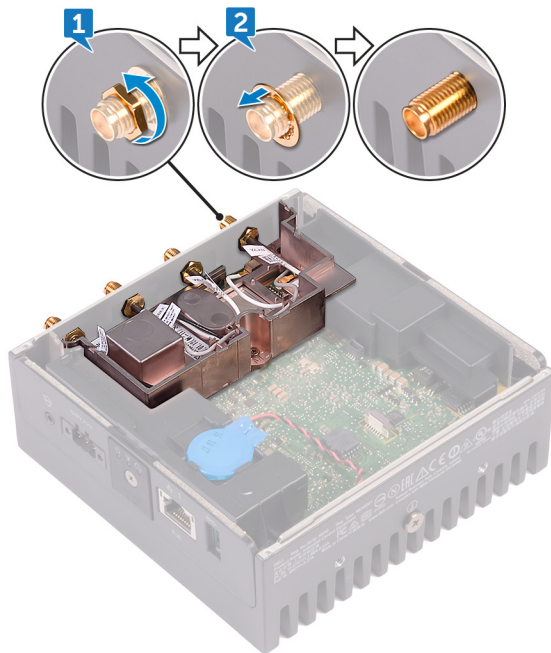
Prerequisites

Remove the [front cover](#).

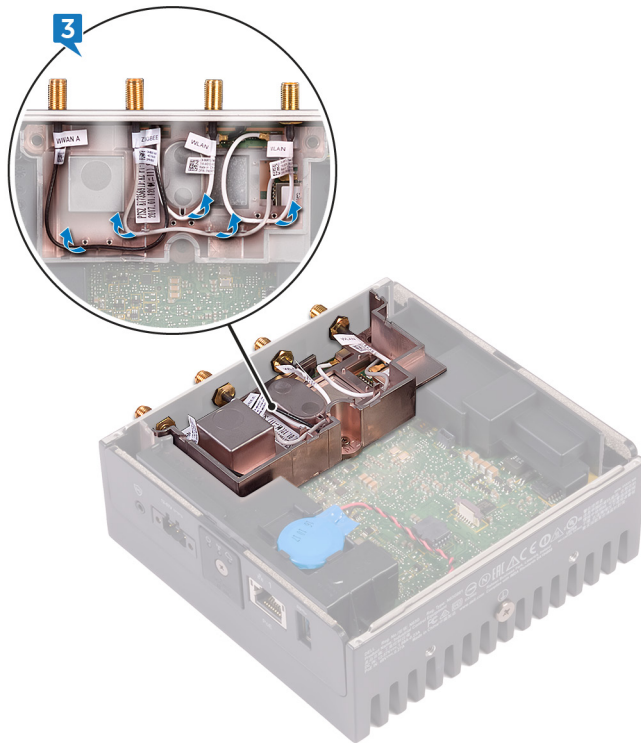
Procedure

✎ NOTE: The ZigBee cable will be present depending on the configuration ordered.

1. Remove the nuts that secure the antenna connectors to the system base.
2. Remove the washers that secure the antenna connectors to the system base.



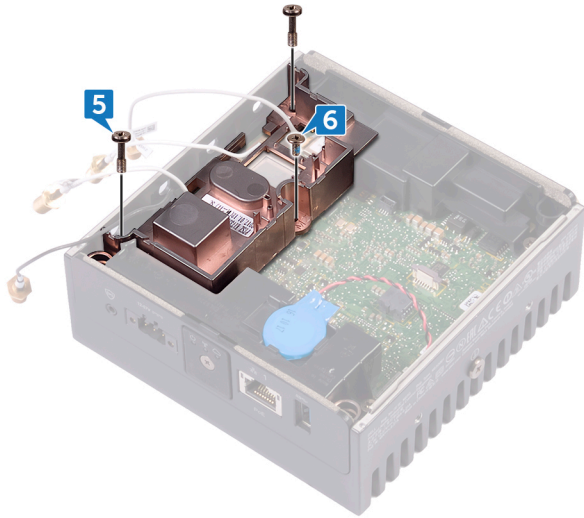
3. Remove the antenna cables from the routing guides on the antenna bracket.



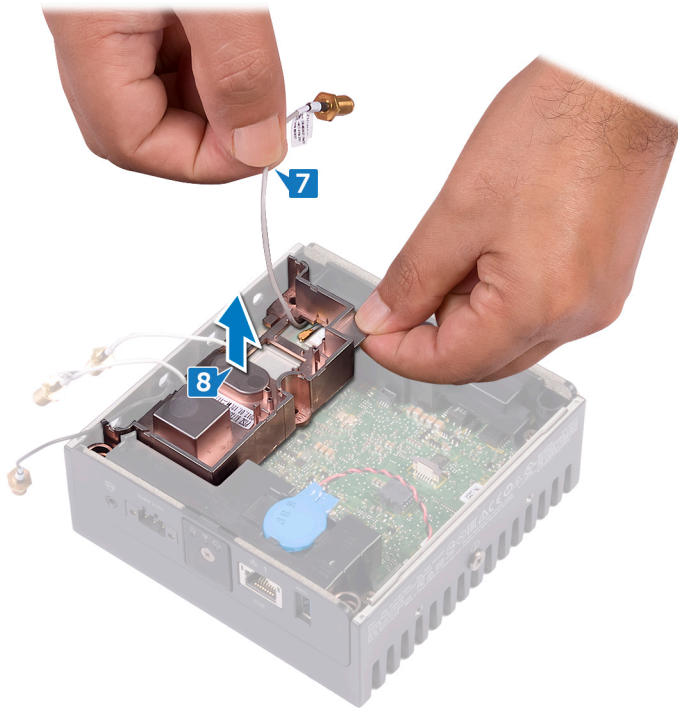
4. Slide and remove the four antenna connectors from the slots on the system base.



5. Remove the two screws (M3x10) that secure the antenna-cable bracket to the system board.
6. Remove the screw (M2x4) that secures the antenna-cable bracket to the system board.



7. Remove the ZigBee cable from the antenna-cable bracket.
8. Lift the antenna-cable bracket off the system board.



Replacing the antenna-cable bracket



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Procedure

1. Route the ZigBee cable through the antenna-cable bracket.
2. Align the screw hole on the antenna-cable bracket with the screw hole on the system board.
3. Replace the screw (M2x4) that secures antenna-cable bracket to the system board.
4. Replace the two screws (M3x10) that secure the antenna-cable bracket to the system board.
5. Insert the antenna cables through the slots on the system base.
6. Route the antenna cables through the routing guides on the antenna bracket.
7. Replace the washers that secure the antennas to the system base.
8. Replace the nuts that secure the antennas to the system base.

Post-requisites

Replace the [front cover](#).

Removing the GPS bracket

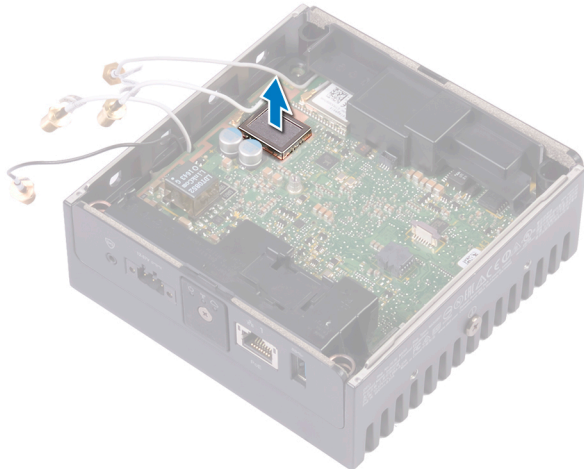
 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

Remove the [front cover](#).

Procedure

Lift the GPS bracket off the system board.



Replacing the GPS bracket



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Procedure

Align and place the GPS bracket on the system board.

Post-requisites

Replace the [front cover](#).

Removing the WLAN cable

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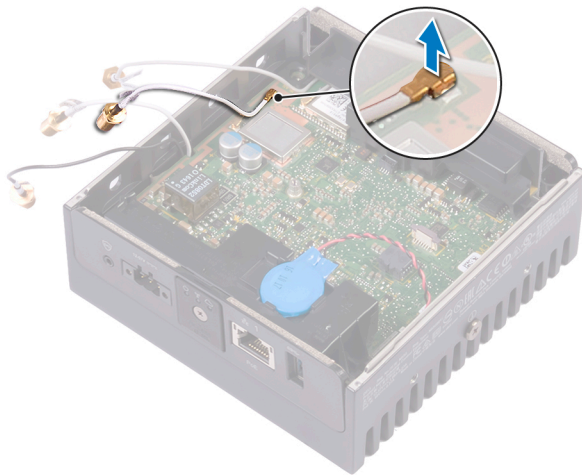
Prerequisites

Remove the [front cover](#).


Procedure

✎ NOTE: The number of antennas and antenna cables varies according to the configuration ordered.

Disconnect the WLAN cable from the system board.



Replacing the WLAN cable

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Procedure

Connect the WLAN cable to the system board.

Post-requisites

Replace the [front cover](#).

Removing the right-I/O cover

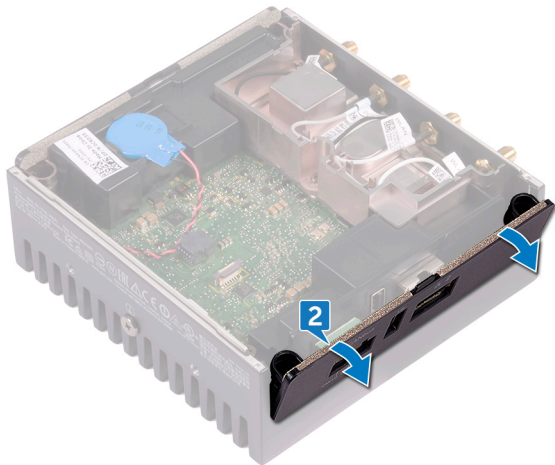
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Prerequisites


Remove the [front cover](#).

Procedure

1. Remove the dust caps on the right-I/O ports.
2. Slide and remove the right-I/O cover from the system base.



Replacing the right-I/O cover

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Procedure

1. Place the right-I/O cover on the system base at an angle and snap it into place.
2. Replace dust caps to the right-I/O ports.

Post-requisites

Replace the [front cover](#).

Removing the coin-cell battery

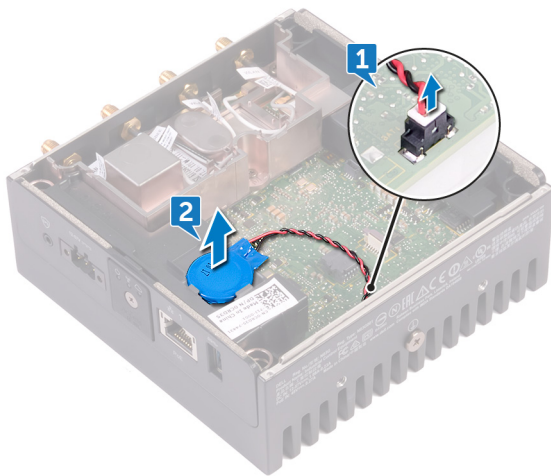
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

Remove the [front cover](#).

Procedure

1. Disconnect the coin-cell battery cable from the system board.
2. Peel off the coin-cell battery from the left-rubber gasket.



Replacing the coin-cell battery



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Procedure

1. Adhere the coin-cell battery on the left-rubber gasket.
2. Connect the coin-cell battery cable to the system board.

Post-requisites

Replace the [front cover](#).

Removing the left-I/O bracket

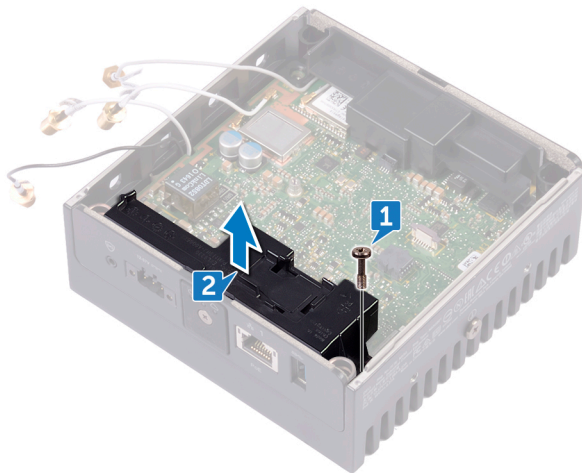
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).

Procedure

1. Remove the screw (M3x10) that secures the left-I/O bracket to the system board.
2. Lift the left-I/O bracket off the system board.



Replacing the left-I/O bracket

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Procedure

1. Align the left-I/O bracket on the left-I/O ports and place the left-I/O bracket on the system board.
2. Replace the screw (M3x10) that secures the left-I/O bracket to the system board.

Post-requisites

1. Replace the [coin-cell battery](#).
2. Replace the [antenna-cable bracket](#).
3. Replace the [front cover](#).

Removing the status-light lens

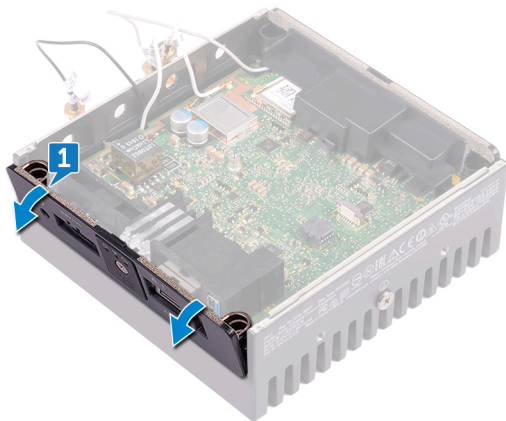
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Prerequisites

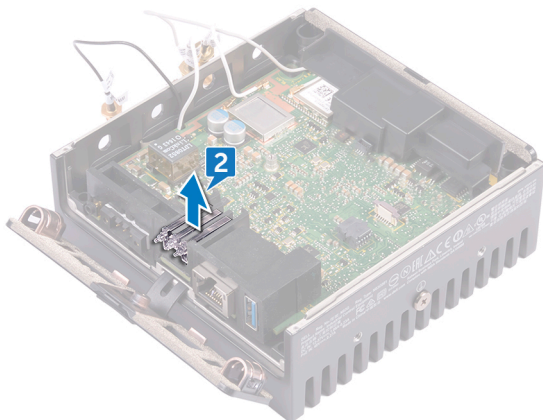
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [left-I/O bracket](#).

Procedure


1. Slide the left-I/O cover at an angle from the system base.



2. Lift the status-light lens off the left-rubber gasket.



Replacing the status-light lens

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Procedure

1. Place the status-light lens on the rubber gasket.
2. Slide the left-I/O cover to the system base.

Post-requisites

1. Replace the [left-I/O bracket](#).
2. Replace the [antenna-cable bracket](#).
3. Replace the [front cover](#).

Removing the right-I/O bracket

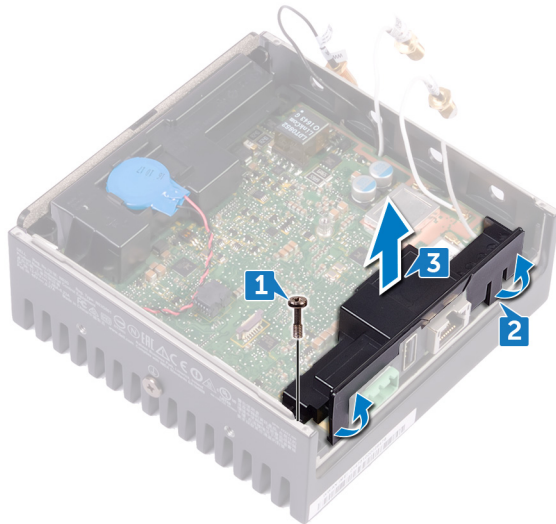
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Prerequisites


1. Remove the [top cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [right-I/O cover](#).

Procedure

1. Remove the screw (M3x10) that secures the right-I/O bracket to the system board.
2. Slide and release the tabs on the right-I/O bracket from the system board.
3. Lift the right-I/O bracket off the system board.



Replacing the right-I/O bracket

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Procedure

1. Place the right-I/O bracket on the system board.
2. Align the tabs on the right-I/O bracket to the system board and snap the right I/O bracket into place.
3. Replace the screw (M3x10) that secures the right-I/O bracket to the system board.


Post-requisites

1. Replace the [right-I/O cover](#).
2. Replace the [antenna-cable bracket](#).
3. Replace the [front cover](#).

Removing the ZigBee cable

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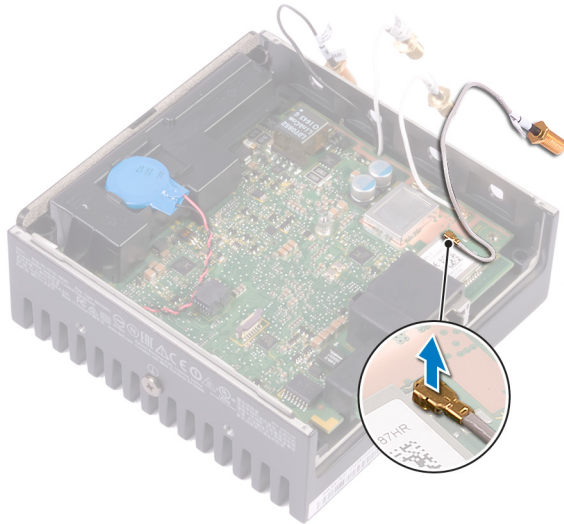
Prerequisites

 **NOTE:** Depending on the configuration ordered, the ZigBee antenna and cable may not be available.


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [right-I/O cover](#).
4. Remove the [right-I/O bracket](#).

Procedure

Remove the ZigBee cable from the system board.



Replacing the ZigBee cable

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Procedure

Connect the ZigBee cable to the system board.

Post-requisites

1. Replace the [right-I/O bracket](#).
2. Replace the [right-I/O cover](#).
3. Replace the [antenna-cable bracket](#).
4. Replace the [front cover](#).

Removing the WWAN card

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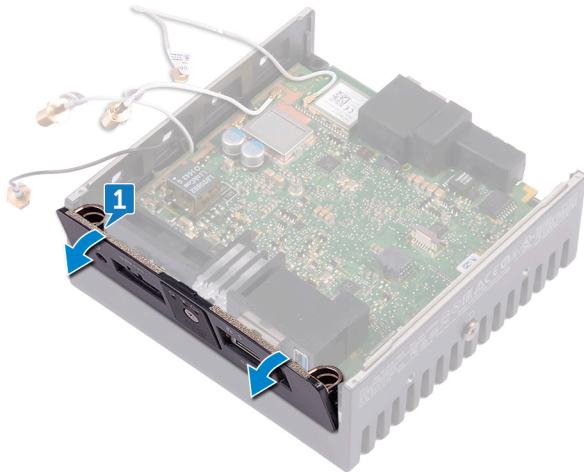
Prerequisites

✎ NOTE: Depending on the configuration ordered, the WWAN card and bracket may not be available.

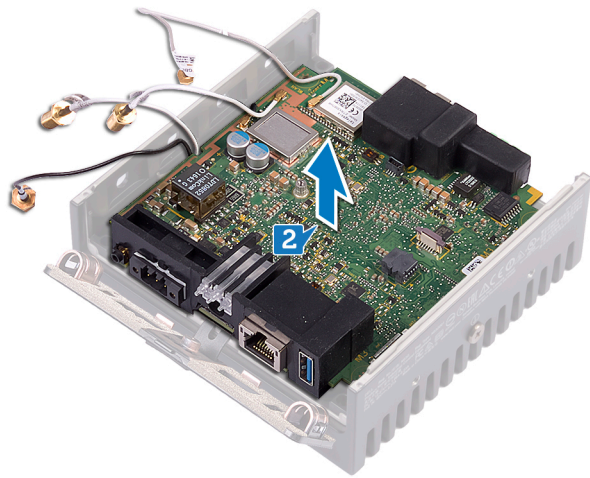
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).
4. Remove the [right-I/O cover](#).
5. Remove the [right-I/O bracket](#).
6. Remove the [left-I/O bracket](#).

Procedure

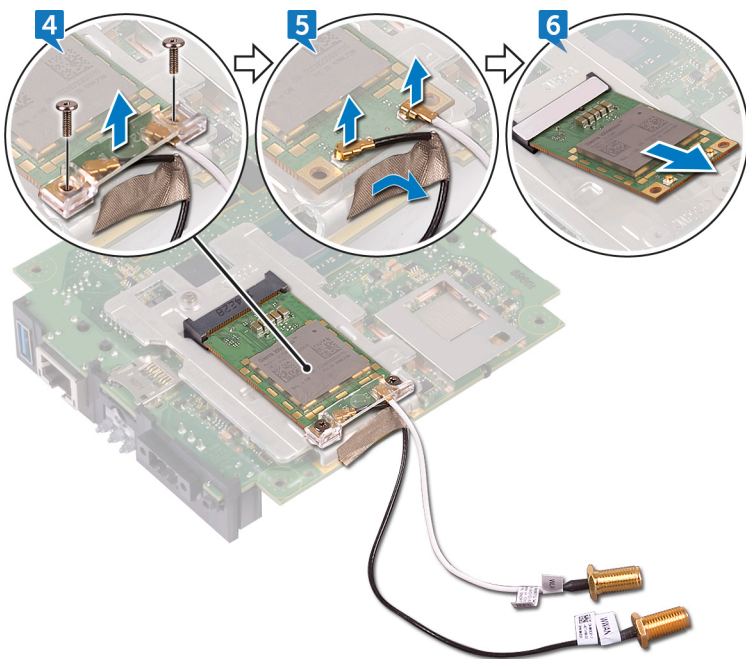
1. Slide the left-I/O cover from the system base.




2. Lift the system board off the system base.



3. Turn the system board over.
4. Remove the two screws (M2x6) that secure the WWAN-card bracket to the WWAN card and lift the WWAN-card bracket off the WWAN card.
5. Peel the tape that secures the WWAN antenna cables and disconnect the WWAN antenna cables from the WWAN card.
6. Slide and remove the WWAN card off the WWAN-card slot.



Replacing the WWAN card

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Procedure

 **NOTE:** To avoid damage to the WWAN card, do not place any cables under it.

1. Align the notch on the WWAN card to the tab on the WWAN-card slot.
2. Insert the WWAN card at an angle into the WWAN-card slot.
3. Connect the WWAN antenna cables to the WWAN card.
4. Adhere the tape that secures the antenna cables.
5. Align the screw holes on the WWAN-card bracket with the screw holes on the WWAN card.
6. Replace the two screws (M2x6) that secure the WWAN-card bracket to the WWAN card.
7. Turn the system board over.
8. Align and place the system board on the system base.
9. Slide the left-I/O cover to the system base.

Post-requisites

1. Replace the [left-I/O bracket](#).
2. Replace the [right-I/O bracket](#).
3. Replace the [right-I/O cover](#).
4. Replace the [coin-cell battery](#).
5. Replace the [antenna-cable bracket](#).
6. Replace the [front cover](#).

Removing the WWAN bracket

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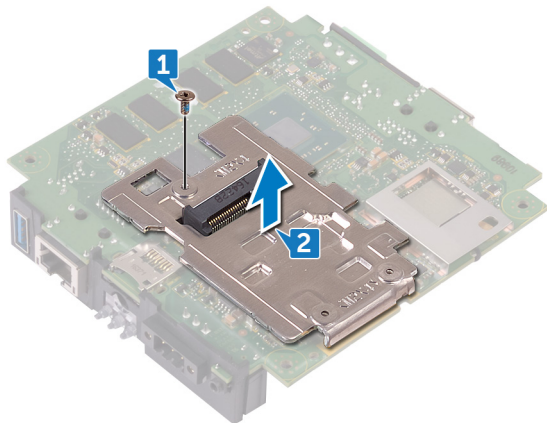
Prerequisites

NOTE: Depending on the configuration ordered, the WWAN card and bracket may not be available.


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).
4. Remove the [right-I/O cover](#).
5. Remove the [right-I/O bracket](#).
6. Remove the [left-I/O bracket](#).
7. Remove the [WWAN card](#).

Procedure

1. Remove the screw (M2x4) that secures the WWAN bracket to the system board.
2. Lift the WWAN bracket off the system board.



Replacing the WWAN bracket

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Procedure

1. Align the screw hole on the WWAN bracket with the screw hole on the system board.
2. Replace the screw (M2x4) that secures the WWAN bracket to the system board.

Post-requisites

1. Replace the [left-I/O bracket](#).
2. Replace the [right-I/O bracket](#).
3. Replace the [right-I/O cover](#).
4. Replace the [antenna-cable bracket](#).
5. Replace the [front cover](#).
6. Replace the [coin-cell battery](#).
7. Replace the [WWAN card](#).

Removing the right-rubber gasket

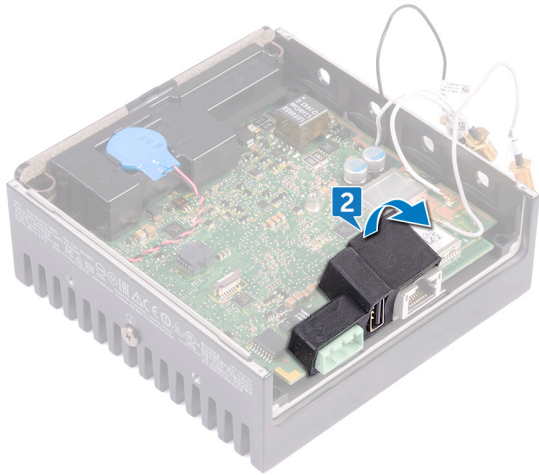
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [right-I/O cover](#).
4. Remove the [right-I/O bracket](#).

Procedure

1. Gently release the ports on the system board from the slots on the right-rubber gasket.
2. Slide and lift the right-rubber gasket off the system board.



Replacing the right-rubber gasket

 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure

1. Slide the ports on the system board into the slots on the right-rubber gasket.
2. Place the right-rubber gasket on the system board.

Post-requisites

1. Replace the [right-I/O bracket](#).
2. Replace the [right-I/O cover](#).
3. Replace the [antenna-cable bracket](#).
4. Replace the [front cover](#).

Removing the left-rubber gasket

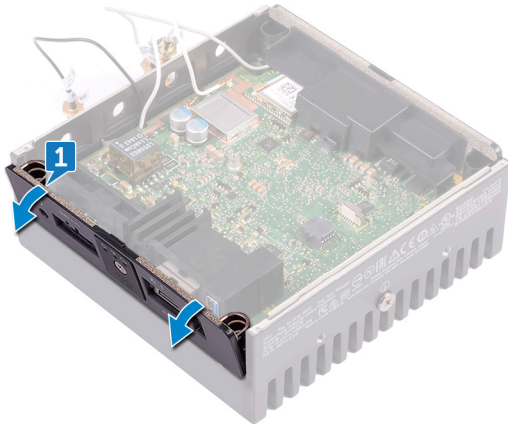
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

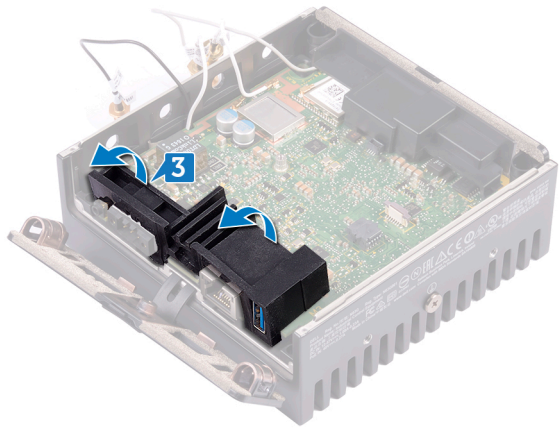
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).
4. Remove the [left-I/O bracket](#).
5. Remove the [status-light lens](#).

Procedure


1. Slide the left-I/O cover from the system base.



2. Gently release the ports on the system board from the slots on the left-rubber gasket.
3. Slide and lift the left-rubber gasket off the system board.



Replacing the left-rubber gasket

 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).


Procedure

1. Slide the ports on the system board into the slots on the left-rubber gasket.
2. Place the left-rubber gasket on the system board.
3. Slide the left-I/O cover to the system base.

Post-requisites

1. Replace the [status-light lens](#).
2. Replace the [left-I/O bracket](#).
3. Replace the [coin-cell battery](#).
4. Replace the [antenna-cable bracket](#).
5. Replace the [front cover](#).

Removing the system board

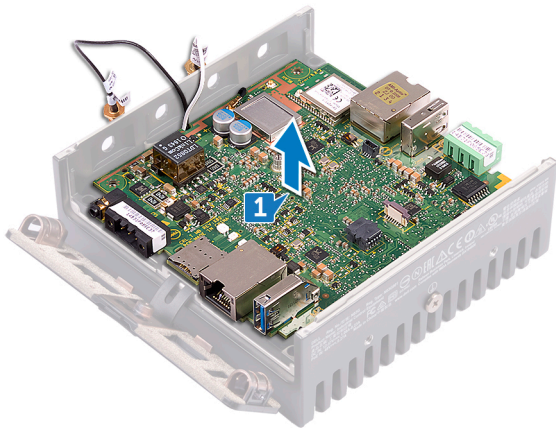
 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

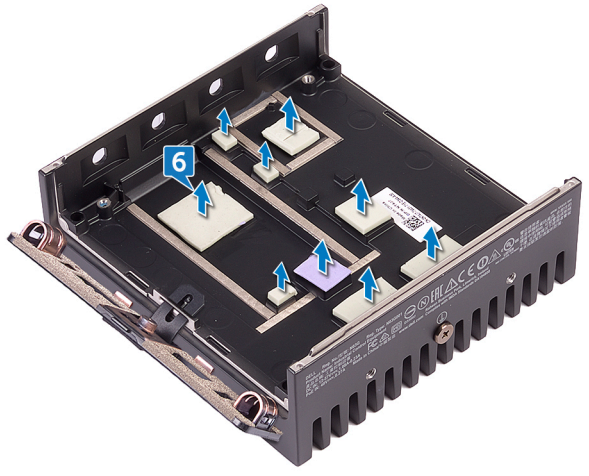
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [WLAN cable](#).
4. Remove the [coin-cell battery](#).
5. Remove the [right-I/O cover](#).
6. Remove the [right-I/O bracket](#).
7. Remove the [left-I/O bracket](#).
8. Remove the [status-light lens](#).
9. Remove the [ZigBee cable](#).
10. Remove the [left-rubber gasket](#).
11. Remove the [right-rubber gasket](#).

Procedure

1. Lift the system board off the system base.



2. Turn the system board over.
3. Remove the [WWAN card](#).
4. Remove the [WWAN bracket](#).
5. Remove the [WLAN bracket](#).
6. Remove the thermal pad from the system base.

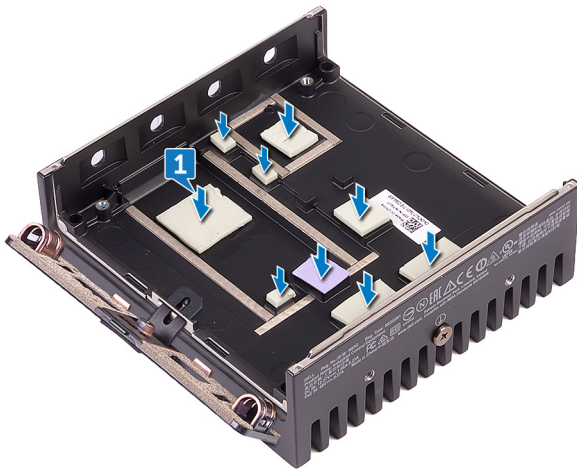


Replacing the system board

WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure

1. Replace the thermal pad on the system base.



2. Replace the [WLAN bracket](#).
3. Replace the [WWAN bracket](#).
4. Replace the [WWAN card](#).
5. Turn the system board over.
6. Align and place the system board on the system base.

Post-requisites

1. Replace the [right-rubber gasket](#).
2. Replace the [left-rubber gasket](#).
3. Replace the [ZigBee cable](#).
4. Replace the [status-light lens](#).
5. Replace the [left-I/O bracket](#).
6. Replace the [right-I/O bracket](#).
7. Replace the [right-I/O cover](#).
8. Replace the [coin-cell battery](#).
9. Replace the [WLAN cable](#).
10. Replace the [antenna-cable bracket](#).
11. Replace the [front cover](#).

Removing the WLAN bracket

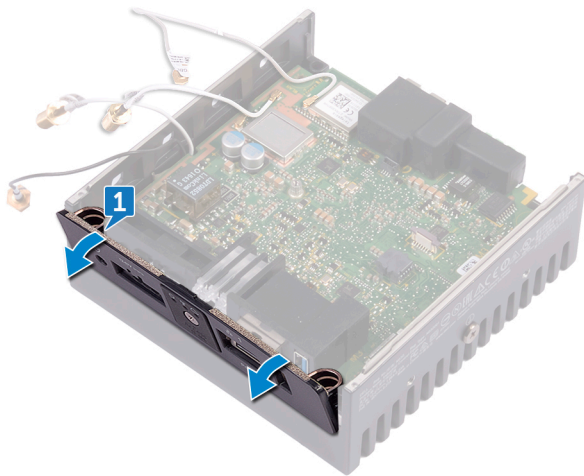
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

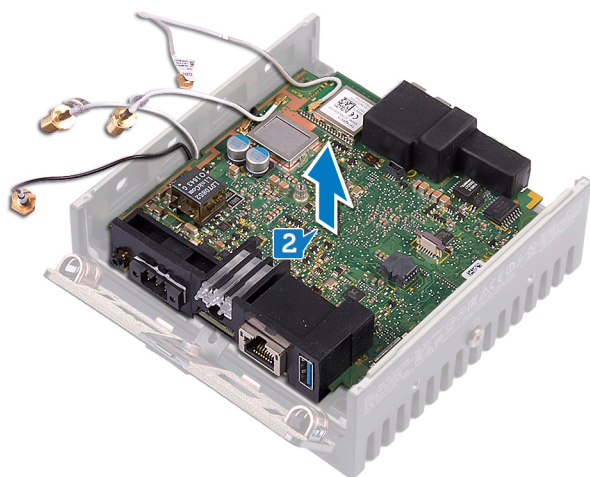
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).
4. Remove the [right-I/O cover](#).
5. Remove the [right-I/O bracket](#).
6. Remove the [left-I/O bracket](#).

Procedure

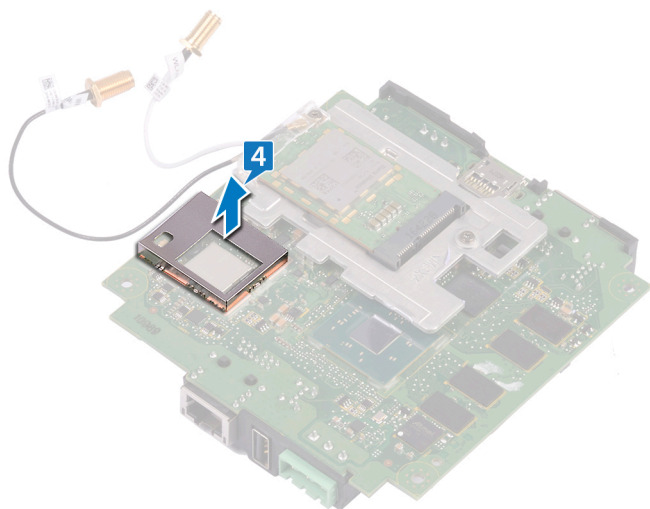
1. Slide the left-I/O cover from the system base.



2. Lift the system board off the system base.



3. Turn the system board over.
4. Lift the WLAN bracket off the system board.



Replacing the WLAN bracket



WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).


Procedure

1. Align and place the WLAN bracket on the system board.
2. Turn the system board over.
3. Align and place the system board on the system base.
4. Slide the left-I/O cover to the system base.

Post-requisites

1. Replace the [left-I/O bracket](#).
2. Replace the [right-I/O bracket](#).
3. Replace the [right-I/O cover](#).
4. Replace the [coin-cell battery](#).
5. Replace the [antenna-cable bracket](#).
6. Replace the [front cover](#).

Removing the left-I/O cover

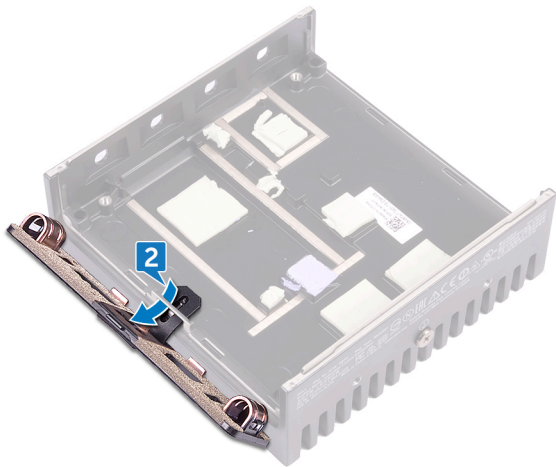
 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [WLAN cable](#).
4. Remove the [coin-cell battery](#).
5. Remove the [right-I/O cover](#).
6. Remove the [right-I/O bracket](#).
7. Remove the [left-I/O bracket](#).
8. Remove the [ZigBee cable](#).
9. Remove the [right-rubber gasket](#).
10. Remove the [status-light lens](#).
11. Remove the [left-rubber gasket](#).
12. Remove the [system board](#).

Procedure

1. Remove the dust caps on the left-I/O ports.
2. Slide the left-I/O cover away from the system base.



Replacing the left-I/O cover

 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure

1. Insert the tab on the left-I/O cover to the slot on the system base.
2. Slide the left-I/O cover onto the system base at an angle and snap it into place.
3. Replace the dust caps to the left-I/O ports.

Post-requisites

1. Replace the [system board](#).
2. Replace the [left-rubber gasket](#).
3. Replace the [status-light lens](#).
4. Replace the [right-rubber gasket](#).
5. Replace the [ZigBee cable](#).
6. Replace the [left-I/O bracket](#).
7. Replace the [right-I/O bracket](#).
8. Replace the [right-I/O cover](#).
9. Replace the [coin-cell battery](#).
10. Replace the [WLAN cable](#).
11. Replace the [antenna-cable bracket](#).
12. Replace the [front cover](#).

Removing the access door

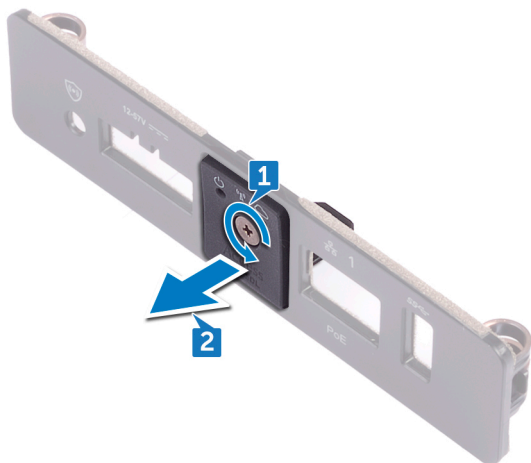
WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites


1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [WLAN cable](#).
4. Remove the [coin-cell battery](#).
5. Remove the [right-I/O cover](#).
6. Remove the [right-I/O bracket](#).
7. Remove the [left-I/O bracket](#).
8. Remove the [ZigBee cable](#).
9. Remove the [right-rubber gasket](#).
10. Remove the [status-light lens](#).
11. Remove the [left-rubber gasket](#).
12. Remove the [system board](#).
13. Remove the [left-I/O cover](#).

Procedure

1. Loosen the captive screw that secures access door to the left-I/O cover.
2. Remove the access door from the slot on the left-I/O cover.



Replacing the access door

 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure

1. Place the access door in the slot on the left-I/O cover.
2. Tighten the captive screw that secures access door to the left-I/O cover.

Post-requisites

1. Replace the [left-I/O cover](#).
2. Replace the [system board](#).
3. Replace the [left-rubber gasket](#).
4. Replace the [status-light lens](#).
5. Replace the [right-rubber gasket](#).
6. Replace the [ZigBee cable](#).
7. Replace the [left-I/O bracket](#).
8. Replace the [right-I/O bracket](#).
9. Replace the [right-I/O cover](#).
10. Replace the [coin-cell battery](#).
11. Replace the [WLAN cable](#).
12. Replace the [antenna-cable bracket](#).
13. Replace the [front cover](#).

Removing the loop-back cable

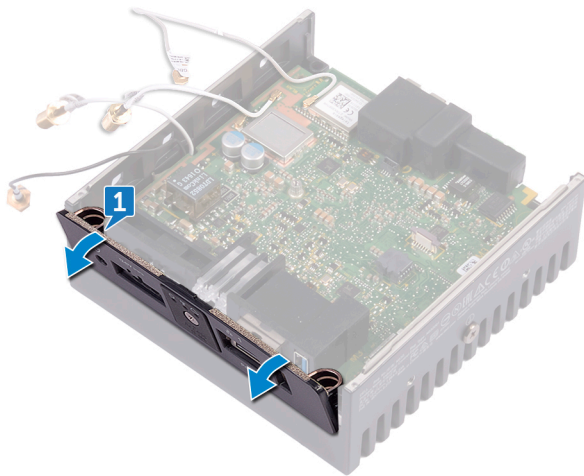
⚠ WARNING: Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Prerequisites

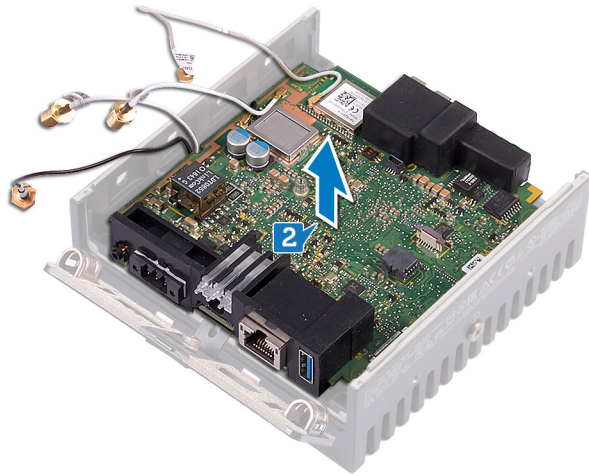
1. Remove the [front cover](#).
2. Remove the [antenna-cable bracket](#).
3. Remove the [coin-cell battery](#).
4. Remove the [right-I/O cover](#).
5. Remove the [right-I/O bracket](#).
6. Remove the [left-I/O bracket](#).

Procedure

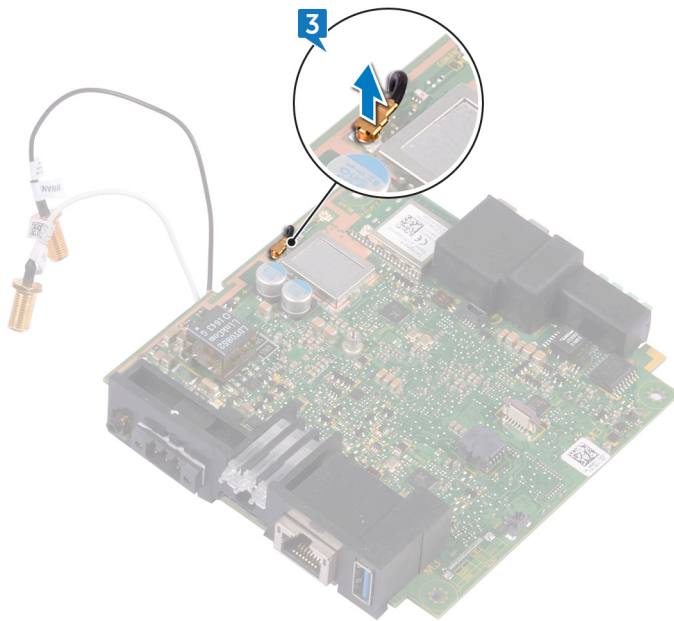
1. Slide the left-I/O cover from the system base.



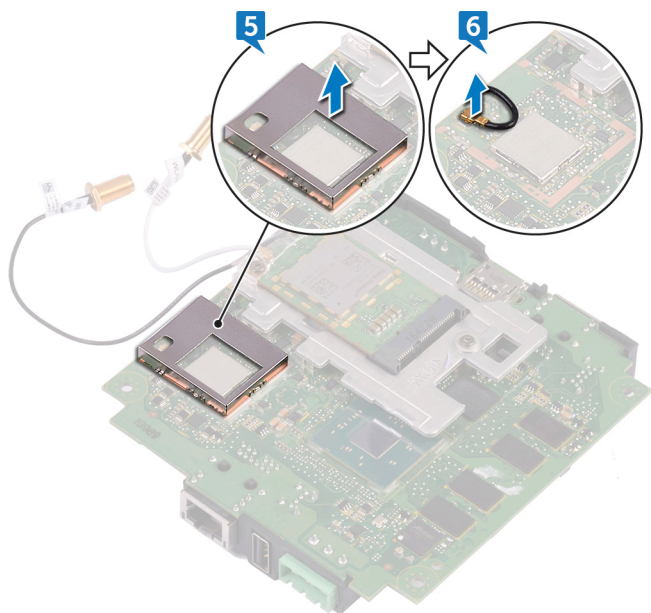
2. Lift the system board off the system base.




3. Disconnect the loop-back cable from the system board.



4. Turn the system board over.
5. Lift the WLAN bracket from the system board.
6. Disconnect the loop-back cable from the system board.



Replacing the loop-back cable

 **WARNING:** Before working inside your Edge Gateway, read the safety information that shipped with your Edge Gateway and follow the steps in [Before working inside your Edge Gateway](#). After working inside your Edge Gateway, follow the steps in [After working inside your Edge Gateway](#).

Procedure

1. Connect the loop-back cable to the system board.
2. Place the WLAN bracket on the system board.
3. Turn the system board over.
4. Connect the loop-back cable to the system board.
5. Align and place the system board on the system base.
6. Slide the left-I/O cover to the system base.

Post-requisites

1. Replace the [left-I/O bracket](#).
2. Replace the [right-I/O bracket](#).
3. Replace the [right-I/O cover](#).
4. Replace the [coin-cell battery](#).
5. Replace the [antenna-cable bracket](#).
6. Replace the [front cover](#).

Accessing and updating BIOS

Accessing BIOS settings

Use Dell Command | Configure (DCC) to access BIOS settings

Dell Command | Configure (DCC) is a factory-installed application in the Edge Gateway that helps to configure the BIOS settings. It consists of a Command Line Interface (CLI) to configure various BIOS features. For more information about DCC, see www.dell.com/dellclientcommandsuitemanuals.

- On the connected computer running Windows, click **Start** → **All Programs** → **Command Configure** → **Dell Command | Configure Wizard**
- On the connected computer running Ubuntu Core, access **Dell Command | Configure** using the command `dcc.cctlk`

For more information on how to use the Dell Command | Configure application, see the Dell Command | Configure *Installation Guide* and *User's Guide* at www.dell.com/dellclientcommandsuitemanuals.

For more information about BIOS settings on the Edge Gateway, see [Default BIOS settings](#)

Use Edge Device Manager (EDM) to access BIOS settings

Edge Device Manager (EDM) enables you to perform remote management and system configuration. By using the EDM cloud console, you can view and configure the BIOS settings. For more information about the EDM, see www.dell.com/support/home/us/en/19/product-support/product/wyse-cloud-client-manager/research.

Entering BIOS setup during POST

 **NOTE:** These steps are applicable only to the Edge Gateway 3003.

1. Connect a display, keyboard and mouse to the system.
2. Power on the Edge Gateway.
3. During POST, when the product logo is displayed, watch for the F2 prompt to appear, and then press **F2** immediately.

Updating BIOS

 **NOTE:** Download the latest BIOS file from dell.com/support/home/us/en/19/product-support/product/dell-edge-gateway-3000-series-oem-ready/drivers.

Select one of these options to update the BIOS on the Edge Gateway.

- [Using the USB invocation script](#)

 **NOTE:** It is recommended to use the USB invocation script to update the BIOS.

- (Edge Gateway 3003 only) [Flashing the BIOS from a USB flash drive](#)
- [Updating the BIOS on a Windows system](#)
- [Using UEFI capsule update on an Ubuntu system](#)
- [Dell Command | Configure \(DCC\)](#)
- [Edge Device Manager \(EDM\)](#)

Using the USB invocation script

The Edge Gateway 3000 Series come in headless configurations—that is, configurations without any video output. Certain basic system administration tasks traditionally accomplished by the BIOS Setup program are not possible without video. Hence, to perform these system administration tasks, Edge Gateways contain a facility for running an invocation script of BIOS commands from a USB flash drive.

For more information about USB invocation script, see the *Edge Gateway USB script utility User's Guide* at www.dell.com/support/home/us/en/19/product-support/product/dell-edge-gateway-3000-series-oem-ready/drivers.

Flashing the BIOS from a USB flash drive

Prerequisites

- BIOS file. Download the file from www.dell.com/support.
- A blank USB 2.0 or 3.0 USB flash drive with at least 4 GB of storage space.

Follow these steps to update the BIOS:

1. Power off the Edge Gateway.
2. Copy the BIOS update file to a USB flash drive.
3. Insert the USB flash drive in one of the available USB ports on the Edge Gateway.
4. Power on the Edge Gateway.
5. Press **F12** when the system is starting up to enter the one-time boot screen.
6. On the one-time boot screen, choose **Flash the BIOS**.
7. In the next screen, select the BIOS file on the USB flash drive.
8. Start the flash process.

Updating the BIOS on a Windows system

Follow these steps to update the BIOS:

1. After connecting to the Edge Gateway.



NOTE: Connect and login to the Edge Gateway with one these options:

- [Remote system configuration](#)
- [Direct system configuration](#) (only for Edge Gateway 3003)
- [Static IP system configuration](#) (only for Edge Gateway 3002 and 3003)

2. Go to www.dell.com/support.
3. Click **Product support**, enter the Service Tag of your system, and then click **Submit**.




NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse to your system model.

4. Click **Drivers & downloads**.
5. Select the operating system installed on your system.
6. Scroll down the page and expand **BIOS**.
7. Click **Download** to download the latest version of the BIOS for your system.
8. After the download is complete, navigate to the folder where you saved the BIOS file.
9. Double-click the BIOS update file icon and follow the instructions on the screen.

Using UEFI capsule update on an Ubuntu system

The `fwupgmgr` tool or commands are used to update the UEFI BIOS on the system. The UEFI BIOS for this platform is released through online Linux Vendor File System (LVFS) based methods

It is recommended to enable the UEFI Capsule update by default so that it is running in the background to keep the system BIOS up to date.

 **NOTE:** For more information about `fwupd` commands, see www.fwupd.org/users.

Without an internet connection

1. Download the latest `.cab` file from secure-lvfs.rhcloud.com/lvfs/devicelist.

2. Check the current BIOS details.

```
$ sudo uefi-fw-tools.fwupdmgr get-devices
```

3. Copy the **firmware.cab** file to `/root/snap/uefi-fw-tools/common/` folder.

```
$ sudo cp firmware.cab /root/snap/uefi-fw-tools/common/
```

4. Check the details of the BIOS from the `.cab` file.

```
$ sudo uefi-fw-tools.fwupdmgr get-details [Full path of firmware.cab]
```

5. Apply the update.

```
$ sudo uefi-fw-tools.fwupdmgr install [Full path of firmware.cab] -v --allow-older --allow-reinstall
```

6. Check the EFI boot details.

```
$ sudo efibootmgr -v
```

7. Restart the system.

```
$ sudo reboot
```

With an internet connection

1. Connect and login to the Edge Gateway.

 **NOTE:** Connect and login to the Edge Gateway with one these options:

- [Remote system configuration](#) (only for Edge Gateway 3001 and 3002)
- [Direct system configuration](#) (only for Edge Gateway 3003)
- [Static IP configuration](#) (only for Edge Gateway 3002 and 3003)

2. Check the current BIOS details.

```
$sudo uefi-fw-tools.fwupdmgr get-devices
```

3. Check if the update is available from LVFS service.

```
$sudo uefi-fw-tools.fwupdmgr refresh
```

4. Download the BIOS from the www.dell.com/support.

```
$sudo uefi-fw-tools.fwupdmgr get-updates
```

5. Apply the update.

```
$sudo uefi-fw-tools.fwupdmgr update -v --allow-older --allow-reinstall
```

6. Check the EFI boot details.

```
$ sudo efibootmgr -v
```

7. Restart the system.

```
$ sudo reboot
```

Dell Command | Configure (DCC)

Use DCC to update and configure the BIOS settings.

For more information on how to use DCC, see the DCC *Installation Guide* and *User's Guide* at www.dell.com/dellclientcommandsuitemanuals.

For more information about BIOS settings on the Edge Gateway, see [Default BIOS settings](#).

Edge Device Manager (EDM)

BIOS can be updated remotely through the EDM console connected to a remote system.

For more information about EDM, see www.dell.com/support/home/us/en/19/product-support/product/wyse-cloud-client-manager/research.

Default BIOS settings

General (BIOS level 1)

Table 2. General (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value	
System Information	System Information	BIOS Version	Not applicable	
		Service Tag	Not applicable	
		Asset Tag	Not applicable	
		Ownership Tag	Not applicable	
		Manufacturing Date	Not applicable	
		Ownership Date	Not applicable	
		Express Service Code	Not applicable	
		Memory Information	Memory Installed	Not applicable
			Memory Available	Not applicable
			Memory Speed	Not applicable
	Memory Channel Mode		Not applicable	
	Memory Technology		Not applicable	
	Processor Information		Processor Type	Not applicable
		Core Count	Not applicable	
		Processor ID	Not applicable	
		Current Clock Speed	Not applicable	
		Minimum Clock Speed	Not applicable	
		Maximum Clock Speed	Not applicable	
		Processor L2 Cache	Not applicable	
		Processor L3 Cache	Not applicable	
		HT Capable	Not applicable	
		64-Bit Technology	Not applicable	
	Device Information	eMMC Drive	Not applicable	
		LOM MAC Address	Not applicable	
		LOM2 MAC Address	Not applicable	
		Video Controller	Not applicable	
		Video BIOS Version	Not applicable	
		Wi-Fi Device	Not applicable	
		Celluar Device	Not applicable	
		Bluetooth Device	Not applicable	
Boot Sequence		Boot Sequence	Boot Sequence - Depends on installed boot devices	Depends on installed boot devices
			Boot List option [Legacy/UEFI]	UEFI
Advanced Boot Options	Advanced Boot Options	Enable Legacy Option ROMs [Enable/Disable]	Enabled	
Date/Time	Date/Time	Date [MM/DD/YY]	Not applicable	

BIOS level 2	BIOS level 3	Item	Default value
		Time [HH:MM:SS A/P]	Not applicable

System configuration (BIOS level 1)

Table 3. System configuration (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Integrated NIC	Integrated NIC	Enable UEFI Network Stack [Enable/Disable]	Enabled
		[Disabled, Enabled, Enabled w/PXE]	Enabled w/PXE
	Integrated NIC 2	[Disabled, Enabled]	Enabled
	Serial Port1	[Disable, RS232, RS-485 HALF DUPLEX, RS-485/422 FULL DUPLEX]	RS232
USB Configuration	Serial Port2	[Disable, RS232, RS-485 HALF DUPLEX, RS-485/422 FULL DUPLEX]	RS232
		USB Configuration	Enable Boot Support [Enable/Disable]
		Enable USB 3.0 Controller [Enable/Disable]	Enabled
		Enable USB Port1 [Enable/Disable]	Enabled
		Enable USB Port2 [Enable/Disable]	Enabled
	Audio	Enable Audio [Enable/Disable]	Enabled
	Miscellaneous Devices	Enable WWAN [Enable/Disable]	Enabled
		Enable WLAN/Bluetooth [Enable/Disable]	Enabled
		Enable CANBus [Enable/Disable]	Enabled
		Enable ZigBee [Enable/Disable]	Enabled
Enable Dedicated GPS Radio [Enable/Disable]		Enabled	
	Enable MEMs Sensor [Enable/Disable]	Enabled	
Watchdog Timer Support	Watchdog Timer Support	Enable Watchdog Timer [Enable/Disable]	Disabled

Security (BIOS level 1)

Table 4. Security (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Admin Password	Admin Password	Enter the old password	Not Set
		Enter the new password	Not applicable
		Confirm new password	Not applicable
System Password	System Password	Enter the old password	Not Set
		Enter the new password	Not applicable

BIOS level 2	BIOS level 3	Item	Default value		
		Confirm new password	Not applicable		
Strong Password	Strong Password	Enable Strong Password [Enable/Disable]	Disabled		
Password Configuration	Password Configuration	Admin Password Min	4		
		Admin Password Max	32		
		System Password Min	4		
		System Password Max	32		
Password Bypass	Password Bypass	[Disabled/Reboot Bypass]	Disabled		
Password Change	Password Change	Allow Non-Admin Password Changes [Enable/Disable]	Enabled		
UEFI Capsule Firmware Updates	UEFI Capsule Firmware Updates	Enable UEFI Capsule Firmware Updates [Enable/Disable]	Enabled		
TPM 2.0 Security	TPM 2.0 Security	TPM 2.0 Security [Enable/Disable]	Enabled		
		TPM On [Enable/Disable]	Enabled		
		PPI Bypass for Enable Commands [Enable/Disable]	Disabled		
		PPI Bypass for Disable Commands [Enable/Disable]	Disabled		
		Attestation Enable [Enable/Disable]	Enabled		
		Key Storage Enable [Enable/Disable]	Enabled		
		SHA-256 [Enable/Disable]	Enabled		
		Clear [Enable/Disable]	Disabled		
		Computrace(R)	Computrace(R)	Deactivate/Disable/Activate	Deactivate
		Chassis Intrusion	Chassis Intrusion	[Disable/Enable/On-Silent]	Disable
CPU XD Support	CPU XD Support	Enable CPU XD Support [Enable/Disable]	Enabled		
Admin Setup Lockout	Admin Setup Lockout	Enable Admin Setup Lockout [Enable/Disable]	Disabled		

Secure boot (BIOS level 1)

Table 5. Secure boot (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Secure Boot Enable	Secure Boot Enable	[Enable/Disable]	Disabled
Expert Key Management	Expert Key Management	Enable Custom Mode [Enable/Disable]	Disabled
		Custom Mode Key Management {PK/KEK/db/dbx}	PK

Performance (BIOS level 1)

Table 6. Performance (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
C-States Control	Inter SpeedStep	Enable Intel SpeedStep [Enable/Disable]	Enabled
C-States Control	C-States Control	C-states [Enable/Disable]	Enabled
Limit CPUID Value	Limit CPUID Value	Enable CPUID Limit [Enable/Disable]	Disabled

Power management (BIOS level 1)

Table 7. Power management (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Auto On Time	Auto On Time	Time Selection: [HH:MM A/P] Auto On Time (if Wake Period =0)	12:00AM
		Value Selection: [0-254] Auto-Wake Period (0-254 minutes)	000
		Day Selection: [Disabled/Every Day/Weekdays/Select Days]	Disabled
		Under [Select Days] when enabled [Sunday/Monday.../Saturday]	Not applicable
Wake on LAN/WLAN	Wake on LAN/WLAN	[Disabled/LAN Only/WLAN only/LAN or WLAN]	Disabled

POST behavior (BIOS level 1)

Table 8. POST behavior (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Keyboard Errors	Numlock LED	Enable Numlock LED [Enable/Disable]	Enabled
Keyboard Errors	Keyboard Errors	Enable Keyboard Error Detection [Enable/Disable]	Enabled
Fastboot	Fastboot	[Minimal/Thorough/Auto]	Thorough
Extend BIOS POST Time	Extend BIOS POST Time	[0 seconds/5 seconds/10 seconds]	0 seconds
Full Screen Logo	Full Screen Logo	Enable Full Screen Logo [Enable/Disable]	Disabled
Warnings and Errors	Warnings and Errors	[Prompt on Warnings and Errors/Continue on Warnings/Continue on Warnings and Errors]	Prompt on Warnings and Errors

Virtualization support (BIOS level 1)

Table 9. Virtualization support (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Virtualization	Virtualization	Enable Intel Virtualization Technology [Enable/Disable]	Enabled

Maintenance (BIOS level 1)

Table 10. Maintenance (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
Service Tag	Service Tag	<System Service Tag>, text entry capability when blank	Not applicable
Asset Tag	Asset Tag	<System Asset Tag>, text entry capability	Not applicable
SERR Messages	SERR Messages	Enable SERR Messages [Enable/Disable]	Enabled
BIOS Downgrade	BIOS Downgrade	Allow BIOS Downgrade [Enable/Disable]	Enabled
Data Wipe	Data Wipe	Wipe on Next Boot [Enable/Disable]	Disabled
BIOS Recovery	BIOS Recovery	BIOS Recovery from Hard Drive [Enable/Disable]	Enabled

System logs (BIOS level 1)

Table 11. System logs (BIOS level 1)

BIOS level 2	BIOS level 3	Item	Default value
BIOS Events	BIOS Events	List of BIOS events with "Clear Log" button to clear the log	Not applicable

Diagnostics

The following table describes the POST (Power-On Self Test) diagnostic light format. For example, the power-status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the system is powered off indicating no memory or RAM is detected.

Table 12. Diagnostics


Light pattern	Problem description
2,1	CPU failure
2,3	No memory or RAM detected
2,4	Memory or RAM failure
2,5	Invalid memory installed
2,6	System board or chipset error
3,1	CMOS battery failure
3,2	PCI/video card failure (Edge Gateway 3003 only)
3,3	Recovery image not found
3,4	Recovery image found but invalid

The following table describes the function of each status light.

Table 13. Status-light indicators

Function	Indicator	Color	Control	Status
System	Power status and System status	Green or Amber	BIOS	Off: System off
				On (Solid Green): System on or Boot successful
				On (Solid Amber): Power up or boot fail
	WLAN or Bluetooth	Green	Hardware	Blinking Amber: Fault or error
				Off: WLAN or Bluetooth module is off
				On: WLAN or Bluetooth module is on
	Cloud	Green	Software	Off: No connection to the cloud device or service
				On: Edge Gateway connected to a cloud device or service
				Blinking Green: Activity to a cloud device or service
LAN (RJ-45)	Link	Green/Amber	Driver (LAN)	Off: No network link or cable is not connected

Function	Indicator	Color	Control	Status
				On (Green): High-speed connection (100 Mbps)
				On (Amber): Low-speed connection (10 Mbps)
	Activity	Green	Driver (LAN)	Off: No activity on link
				Blinking Green: LAN activity. The blink rate is related to packet density.

 **NOTE:** The power and system status light may operate differently during different boot-up scenarios, for example, when a USB script file is run during boot-up.

Appendix

Connecting to the Edge Gateway

Windows 10 IoT Enterprise LTSB 2016


Boot up and login – Direct system configuration

1. Connect a monitor, keyboard and mouse to the Edge Gateway before you login.
2. Power on the Edge Gateway. At the first boot, you will not be prompted to enter login credentials. Subsequent boots will prompt for you to log in.

 **NOTE: The default user name and password are both `admin`.**

Boot up and login – Remote system configuration

 **NOTE: Your computer must be on the same subnet as the Edge Gateway.**

1. Connect a network cable from Ethernet port one on the Edge Gateway to a DHCP-enabled network or router that provides IP addresses.
 -  **NOTE: The first-time boot to Windows takes about 5 minutes for system configuration. Subsequent boot-ups take about 50 seconds.**
2. Using the MAC address provided on the front cover of the Edge Gateway, obtain the IP address through your network's DHCP server or through a network analyzer.
3. On the Windows computer, search for **Remote Desktop Connection** and launch the application.
4. Log in using the IP address.

 **NOTE: Ignore any certification errors when connecting to your Edge Gateway.**


Boot up and login—Static IP system configuration

 **NOTE: To help set up the Edge Gateway remotely, the static IP address of on the Edge Gateway is set to these values at the factory:**

- IP address: 192.168.2.1
- Subnet mask: 255.255.255.0
- DHCP server: Not applicable

You can connect your Edge Gateway to a Windows computer that is on the same subnet using a crossover cable.

1. On the Windows computer, search for **View network connections** in the control panel.
2. In the list of network devices displayed, right-click the Ethernet adaptor that you want to use to connect to the Edge Gateway, then click **Properties**.
3. On the **Networking** tab, click **Internet Protocol Version 4 (TCP/IPv4) → Properties**.
4. Select **Use the following IP address**, then enter 192.168.2.x (where x represents the last digit of the IP address, for example, 192.168.2.2).

 **NOTE: Do not set the IPv4 address to the same IP address as the Edge Gateway. Use an IP address between 192.168.2.2 to 192.168.2.254.**

5. Enter the subnet mask 255.255.255.0, then click **OK**.

6. Secure a crossover network cable between Ethernet port two on the Edge Gateway and the configured Ethernet port on the computer.
7. On the Windows computer, launch **Remote Desktop Connection**.
8. Connect to the Edge Gateway using the IP address 192.168.2.1. The default username and password are both `admin`.

Ubuntu Core 16

Boot up and log in – Direct system configuration

1. Power on the Edge Gateway. The system sets up the operating system automatically and restarts multiple times to apply all the configurations. The system takes approximately one minute to boot to the operating system.
2. When prompted, log in using the default credentials. The default user name and password are both `admin`. The default computer name is the service tag.

For example;

```
Ubuntu Core 16 on 127.0.0.1 (tty1)
localhost login: admin
Password: admin
```

Boot up and log in – Remote system configuration

1. Connect a network cable from Ethernet port one on the Edge Gateway to a DHCP-enabled network or router that provides IP addresses.
2. In your network's DHCP server, use the command `dhcp-lease-list` to obtain the IP address associated with the Edge Gateway's MAC address.
3. Setup an SSH session using an SSH terminal emulator (for example, native command-line ssh client on Linux or PuTTY on Windows).

 **NOTE: The SSH service is enabled on Ubuntu Core 16 by default.**

4. Enter the command `ssh admin@<IP address>`, followed by the default user name and password. The default user name and password are both `admin`.

For example;

```
lo@lo-Latitude-E7470:~$ ssh admin@10.101.46.209
admin@10.101.46.209's password:
```


Boot up and log in – Static IP system configuration

This allows you to connect your Edge Gateway through a host computer, which must be on the same subnet.

 **NOTE: The static IP address of Ethernet port two on the Edge Gateway is set to these values at the factory:**

- IP address: 192.168.2.1
- Subnet mask: 255.255.255.0
- DHCP server: Not applicable

1. On the host computer, configure the Ethernet adaptor that is connected to the Edge Gateway with a static IPv4 address under the same subnet. Set the IPv4 address to 192.168.2.x (where x represents the last digit of the IP address, for example, 192.168.2.2).

 **NOTE: Do not set the IPv4 address to the same IP address as the Edge Gateway. Use an IP address between 192.168.2.2 to 192.168.2.254.**

2. Set the subnet mask to 255.255.255.0.